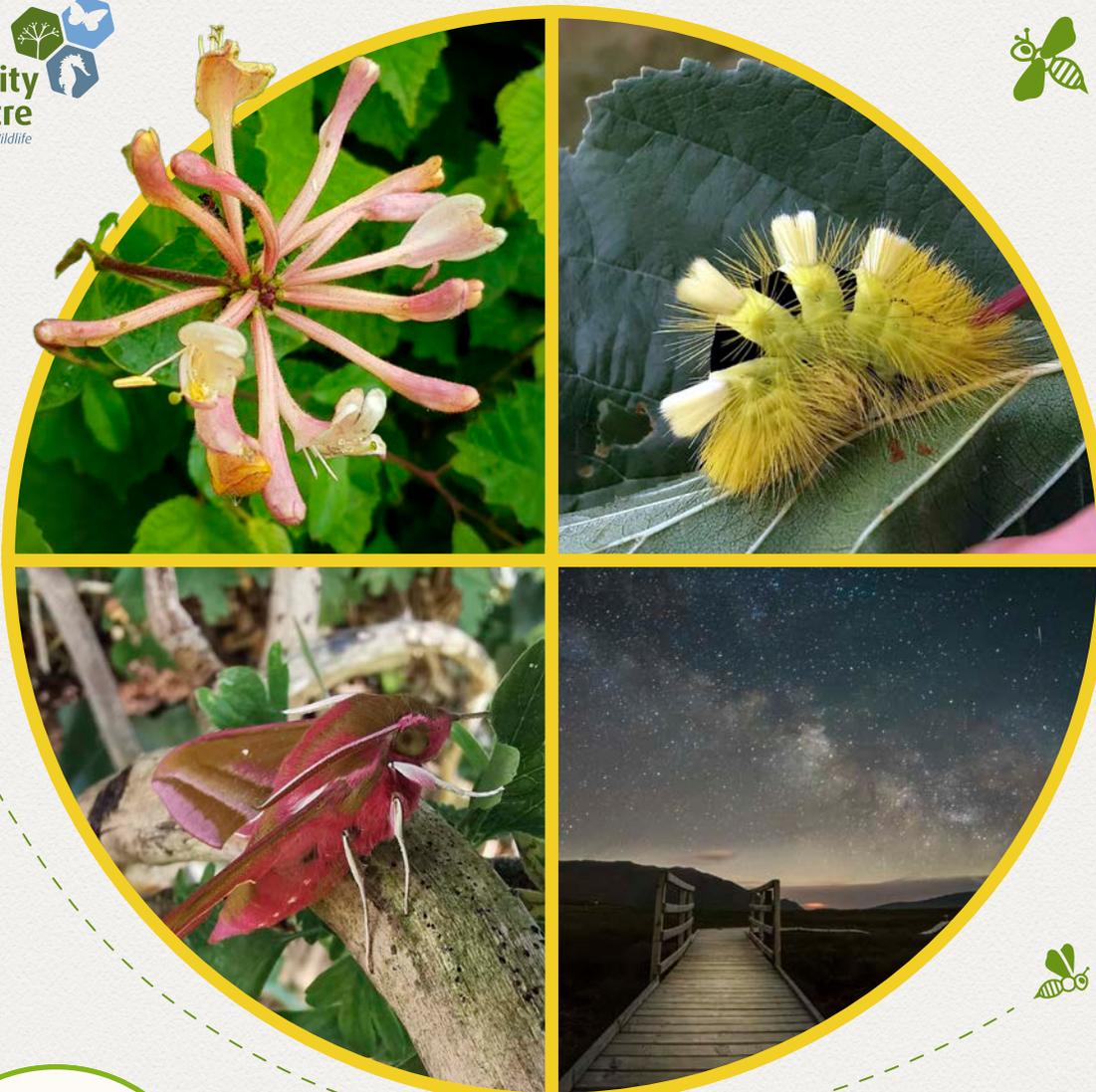




# How-to-guide

## Protecting nocturnal pollinators



[www.pollinators.ie](http://www.pollinators.ie)

How-to-guide 13



# All-Ireland Pollinator Plan



Across the island of Ireland, pollinators are in decline. Experts agree that they are in trouble primarily due to a lack of food and shelter. A vast majority of our plants are pollinated by insects, (mostly bees), but our landscape doesn't provide the abundance and diversity of flowers they need to survive, or enough suitable nesting habitats. If we want to ensure the survival of our fruits, vegetables, and wild plants, we need to have healthy populations of wild bees and other insect pollinators.

The All-Ireland Pollinator Plan was established in 2015. It is a framework bringing together different sectors across the island of Ireland to create a landscape where pollinators can survive and thrive. Its implementation is coordinated by the National Biodiversity Data Centre. The Plan identifies and shares evidence-based recommendations to help pollinators so that we can collectively take steps to reverse declines and restore populations to healthy levels.

The All-Ireland Pollinator Plan is supported by over 100 governmental and non-governmental organisations who have pledged to take action to help pollinators. It is a shared plan of action. Everyone, from local communities to businesses, farmers, transport authorities, councils, schools and gardeners, has a role to play to help save these important insects.



# About this guide

This guide is part of a series of resources offering more detailed advice on specific pollinator actions. All of the recommendations in this guideline are evidence-based, backed up by science.

## What are nocturnal pollinators?

Most people don't realise that many of our pollinators are busy at work during the night, whilst we are sleeping. These nocturnal invertebrates carry out essential functions in our ecosystem and are just as important as their daytime counterparts. In fact, night-time pollinators provide essential services to crop pollination; and some fruit plants, such as strawberries and blackberries, can have higher rates of pollination at night, than during the day. Nocturnal invertebrates, such as moths, transport pollen across wide agricultural networks, providing pollen to wildflowers and enhancing species diversity in our landscape. Like day-flying pollinators, those that fly at night or at twilight, need to be protected across our entire landscape from farms to local communities to gardens.



# Moths in Ireland

There are around 1,500 species of moths on the island of Ireland.

Of these, the conservation status of one third has been assessed, with 8% threatened with extinction. Those assessed are the larger species (macro-moths). The status and distribution of many of the smaller species (micro-moths) is not well known. Some moths are day flying, but the majority are nocturnal.

Declines in nocturnal pollinators can be less noticeable, making it easier for us to gradually become accustomed to their disappearance. It's important that we don't accidentally slip into a new normal. Today's children don't get to experience the clouds of moths many people remember from their childhoods when an outside light was turned on. It is vitally important that we take steps to better support these insects in our landscape and begin reversing the losses they have experienced.

## Five common nocturnal moth species



Burnished Brass



Herald



Elephant Hawkmoth



Large Yellow Underwing



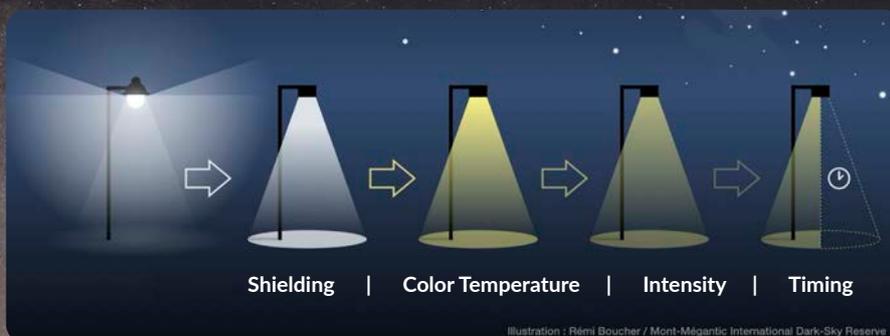
Bordered Beauty

# Why are nocturnal pollinators in trouble?

Like all our insects, nocturnal pollinators are declining through pressures such as habitat loss and pesticide use. However, another important driver of decline in nocturnal pollinators is light pollution.

Light pollution is increasing rapidly, with researchers recently finding that the brightness of the sky is increasing by 10% every year. On the island of Ireland, light pollution has increased significantly over the last 25 years, leaving a brighter-than-natural nocturnal environment across most of the landscape. The introduction of LEDs containing high levels of blue-rich light is particularly concerning for biodiversity as it is altering the day/night rhythm of ecosystems (by replicating daylight conditions at night) and creating ecological light pollution with severe consequences to the natural world.

Streetlights containing high levels of blue rich light attract hundreds of invertebrates per night. This impairs them from finding mates, evading predators, and pollinating plants. Ireland has approximately 500,000 streetlights, each one of them is set to operate from dusk to dawn every night (approximately 4,100 hours per year), potentially drawing nocturnal pollinators away from their important work.



# Actions you can take to help nocturnal pollinators

Many of the actions we recommend within the All-Ireland Pollinator Plan focus on returning habitats, increasing native plants, creating ecological corridors for biodiversity, and on reducing pesticides. These actions will also benefit nocturnal pollinators. Beyond these, there are specific actions you can take to help these important insects:

## ACTION 1

### Close blinds or curtains at night

Try not to let artificial light seep out from homes or other buildings. You may notice how many moths arrive through an open window when a light is visible from outside, each one drawn away from its job as a pollinator.

## ACTION 2

### Minimise outdoor light use

Identify any unnecessary lights that you could remove or switch off at night. Where lighting is necessary, dim lights to the lowest acceptable levels, or consider timers or PIR motion sensors so they are not left on unnecessarily.

## ACTION 3

### Choose lights that are least harmful to biodiversity



Colour matters – where outside lights are needed, try to use warm or red toned LEDs (2700 kelvins or less), as these are the least harmful to most species.

Choose warm tones & avoid the blues. LEDs under 2,700k

## ACTION 4

### Try to avoid ornamental lighting

Particularly avoid ornamental lights in tree foliage, around water bodies, and on boundary fencing or walls.

## ACTION 5

# Avoid pointing lights into the sky at night

Use shields and direct lighting to where it is needed and avoid pointing lights into the sky or above the horizontal level.



## ACTION 6

# Increase native plants that provide nectar for nocturnal pollinators

Within farms, local communities, schools, parks and gardens, identify and protect native species that are attractive to nocturnal pollinators through their scent or pale flower colouring.

Ten native plants that are important nectar sources for nocturnal pollinators:



Honeysuckle



Hemp-agrimony



Ivy



Red Campion



Marjoram



Rosebay Willowherb



Bird's-foot-trefoil



Willow



Bilberry



Field Scabious



Despite their name, our native Butterfly-orchids emit a sweet scent at night that attracts their primary pollinators – evening and night-flying moths.

## ACTION 7

# Increase native plants that provide food for moth caterpillars

It is important to provide food for moth caterpillars, as well as the nectar-rich flowers that are important for adult moths. Some moth caterpillars will eat the leaves of a wide range of plants, but most are restricted to a few or even just one plant species. Try to ensure you have a range of native plants to encourage a diversity of moths.

Ten native plants that are important for moth caterpillars:

- Hawthorn
- Alder
- Ivy
- Dog Rose
- Oak
- Birch
- Nettle
- Hazel
- Holly
- Willow



Puss Moth caterpillar - feeds on Aspen and Birch



Pale Tussock caterpillar on Alder



Eyed Hawk-moth on Willow

## ACTION 8

# Don't tidy up dead plant matter

Moths need fallen leaves, old stems and other plant debris to allow them to hide from predators, and to provide suitable places for caterpillars and pupae to overwinter. Try not to tidy up the landscape.

**i** **Idea:** Create a dark wildlife corridor for nocturnal pollinators, where no lights penetrate. It can be an edge of your garden, along a boundary, or around a pond.



## ACTION 9

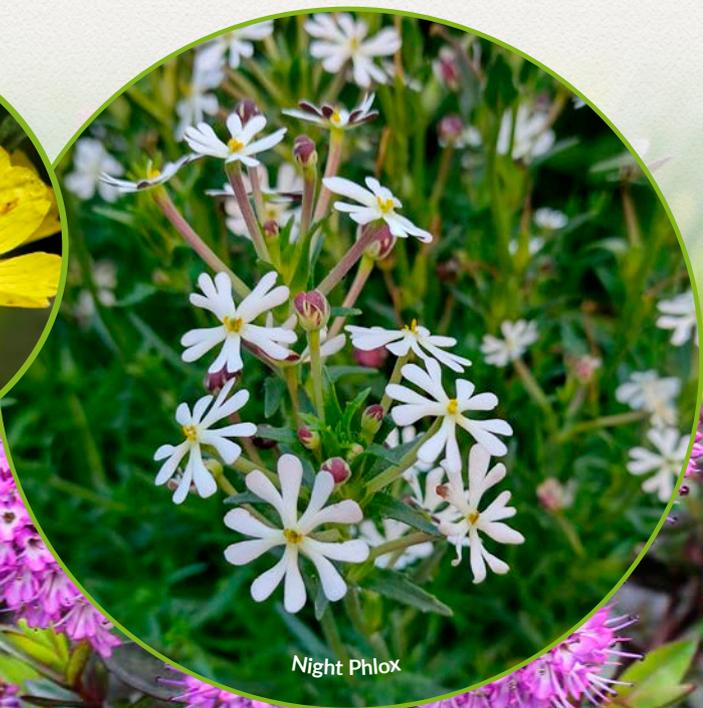
# Create a 'moon garden' through ornamental planting

In gardens, schools, parks or businesses sites where you are considering pollinator-friendly ornamental planting, include a 'moon garden' with species that are attractive to nocturnal moths. Take care not to plant these ornamental plants in the wider landscape.

Ten ornamental plants that provide nectar for nocturnal pollinators:

- Honeysuckles
- Common Jasmine
- Evening Primrose
- Night-scented Stock
- Sweet Rocket
- Tobacco plant
- Night Phlox
- Hebe
- Showy Stonecrop
- Michaelmas Daisy

*We can encourage nocturnal pollinators by taking some easy measures around our own homes and gardens. Pollination levels can decrease by more than 60% in light polluted areas.*



Hebe

## ACTION 10

# Consider getting involved in moth recording

A convenient way to start recording, is to look for day-flying moths or caterpillars. You can also check with your local Heritage or Biodiversity Office if there are any planned moth recording evenings. Consider joining the MothsIreland Facebook page for lots of information regarding current species on the wing, and experts to assist with identification. Many choose to purchase or make their own moth trap for recording garden species, and a moth trapping licence may be arranged via MothsIreland.

**1,500  
Species**

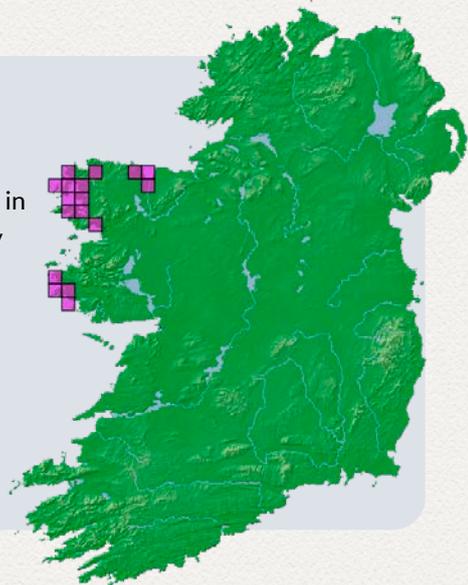
of moths on the island of Ireland



Of these, only the conservation status of the larger macro-moths has been assessed, with 8% threatened with extinction.

## Protecting Rare Moths

The Belted Beauty is a rare moth, currently found only in the West of Ireland. Mulranny in Co Mayo is a dark sky community that is taking steps to protect this species.



Records of the Belted Beauty in Ireland since 2000. Source: National Biodiversity Data Centre, 2023.

# Create a dark sky friendly garden

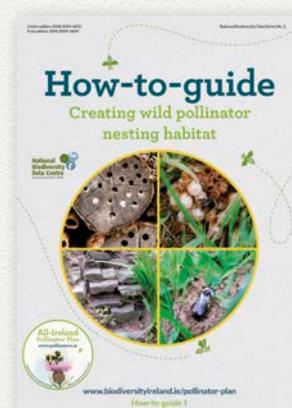
Having a 'dark sky' friendly garden with dedicated areas for stargazing in winter months is a lovely family activity. Turn your sun loungers into star loungers, wrap up warm and enjoy a crisp night under the stars!

For more information on dark skies and stargazing, visit:

[www.mayodarkskypark.ie](http://www.mayodarkskypark.ie)

[www.darksky.ie](http://www.darksky.ie)

This booklet is one of a series of Guidelines produced to help different sectors take actions under the All-Ireland Pollinator Plan. For more information and other useful resources, please see [www.pollinators.ie](http://www.pollinators.ie)



The All-Ireland Pollinator Plan is coordinated by the National Biodiversity Data Centre. Funding to assist implementation has been provided by the Heritage Council, the National Parks and Wildlife Service and the Department of Agriculture, Food and the Marine.

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## About the National Biodiversity Data Centre

The National Biodiversity Data Centre is a national organisation that collects and manages data to document Ireland's wildlife resource, and to track how it is changing. See [maps.biodiversityireland.ie](http://maps.biodiversityireland.ie)

**Text:** Georgia MacMillan (Mayo Dark Sky Park), Úna FitzPatrick (National Biodiversity Data Centre), Rachel McKenna & Michael O'Donnell (MothsIreland). Thanks to David Smith (BugLife UK), Anne Murray (DLR) & Pauline Campbell (NIEA) for input. Design: Vitamin.ie.

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